

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

VOCALIFE LLC, §
§
Plaintiff, §
§
v. § CIVIL ACTION NO. 2:19-CV-00123-JRG
§
AMAZON.COM, INC., AMAZON.COM § **FILED UNDER SEAL**
LLC, §
§
Defendants. §

**ORDER REGARDING THE DEFENSE OF INEQUITABLE CONDUCT TOGETHER
WITH SUPPORTING FINDINGS OF FACT AND CONCLUSIONS OF LAW**

This is a patent infringement case. The Court held a jury trial in this case from October 1, 2020 to October 8, 2020. (Dkt. Nos. 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340). On October 8, 2020, the jury returned a unanimous verdict finding that some or all of the asserted claims were infringed and not invalid. (Dkt. No. 323). The Court subsequently considered Defendants' assertion of unenforceability of U.S. Patent No. RE 47,049 (the "'049 Patent") on the basis of inequitable conduct. (*See* Dkt. No. 341). The bench trial on inequitable conduct took place on October 8, 2020 while the jury deliberated on their verdict. (*Id.*).

Based on the following findings and conclusions, the Court holds that the '049 Patent is not unenforceable on the basis of inequitable conduct.

I. FINDINGS OF FACT ("FF")

A. Factual Background

[FF1] On April 16, 2019, Plaintiff Vocalife LLC ("Plaintiff" or "Vocalife") filed suit for patent infringement against Defendants Amazon.com, Inc. and Amazon.com LLC (collectively, "Defendants" or "Amazon") (together with Vocalife, the "Parties"). (Dkt. No. 1).

[FF2] Vocalife contended that certain of Amazon’s Echo devices infringed the ’049 Patent, asserting Claims 1 and 8 were infringed by the accused products. (*See id.*; Dkt. No. 96; Dkt. No. 294).

[FF3] Among Amazon’s defenses, they asserted inequitable conduct in the prosecution of the ’049 Patent and its parent, U.S. Patent No. 8,861,756 (the “’756 Patent”). (*See* Dkt. No. 226).

B. Procedural Background

[FF4] As noted above, the Court held a jury trial in this case, and the jury reached a unanimous verdict holding that one or more of the asserted claims were infringed and not invalid. (Dkt. No. 323). Claims 1 and 8 of the ’049 Patent were the asserted claims in this case. (*See id.*).

[FF5] After the close of evidence before the jury, a bench trial was held before the Court on Amazon’s inequitable conduct claim, which took place while the jury deliberated. (*See* Dkt. No. 341).

C. The ’756 Patent

[FF6] On March 16, 2011, inventors Dr. Qi “Peter” Li and Dr. Manli Zhu filed U.S. Patent Application No. 13/049,877, which issued on October 14, 2014 as U.S. Patent No. 8,861,756. (Dkt. No. 1-2). The ’756 Patent is titled “Microphone Array System.” (*Id.*).

[FF7] The ’756 Patent listed Li Creative Technologies, Inc. (“Li Creative”) as the assignee of the patent. (*Id.*).

[FF8] The applicants filed Provisional Application No. 61/403,952 on September 24, 2010 (the “2010 Provisional Application”), which is the priority date of the ’756 patent. (PTX-8; Dkt. No. 329 (October 1, 2020 Afternoon Trial Tr.) at 212:15-18).

[FF9] The Information Disclosure Statement submitted with the application for the ’756 Patent included U.S. Patent No. 7,039,199 (“Rui”), U.S. Patent Application Publication Nos.

2007/0076898 (“Sarroukh”), 2009/0279714 (“Kim I”), 2009/0304200 (“Kim II”), and Foreign Patent Document No. WO2008041878 (“Sarik”). (DTX-55.84).

[FF10] During the prosecution of the ’756 Patent, Claims 1-20 were rejected as unpatentable over U.S. Patent Application Publication No. 2009/0141907 (“Kim III”) in view of U.S. Patent Application Publication No. 2004/0161121 (“Chol”). (DTX-55.128).

[FF11] In response, the applicant amended its claims to include a “determining a delay” limitation. (DTX-55.145).

[FF12] The applicant pointed to Kim III and Chol as not teaching or disclosing the “determining a delay” limitation. (DTX-55.156-159).

[FF13] The examiner ultimately allowed Claims 1, 2, and 5-23, stating in the Reasons for Allowance that “neither Kim nor Chol teaches the method of improving sound quality by combining various units such as sound source localization unit, adaptive beamforming unit and noise reduction unit, where in the arbitrary configuration of the microphone array is determined by the delays, predefined angle, reference axis, azimuth angle, etc.” (DTX-55.176).

[FF14] Claim 1 of the ’756 Patent as issued recites a method for enhancing a target sound signal, and includes the “determining a delay” limitation in which delay is determined between sound sensors as a function of distance between said sensors, a predefined angle between the sensors and a reference axis, and an azimuth angle between the reference axis and a target sound signal. (PTX-2 at 21:11-16).

[FF15] Claim 1 of the ’756 Patent also recites a microphone array system comprising an array of sound sensors position in an arbitrary configuration, a sound source localization unit, adaptive beamforming unit, and noise reduction unit. (*Id.* at 20:66-21:4).

[FF16] The '756 Patent was surrendered when Dr. Li applied for the '049 Patent as a reissue, on the basis that there were errors in the '756 Patent. (*See* PTX-3).

D. The '049 Patent

[FF17] On October 14, 2016, Li Creative, listing inventors Dr. Li and Dr. Zhu, filed U.S. Patent Application No. 15/293,626, which issued on September 18, 2018 at U.S. Reissued Patent No. RE 47,049. (Dkt. No. 1-3). The '049 Patent is likewise titled "Microphone Array System." (*Id.*).

[FF18] The '049 Patent is a reissue of the '756 Patent. (*Id.*).

[FF19] During the prosecution of the '049 Patent, Claim 1 was rejected as unpatentable in light of the arbitrary configuration limitation and was subsequently amended to recite a "linear, circular, or other configuration." (*See* PTX-3).

[FF20] Claim 1 was also amended to include the limitation that the sound source localization unit, adaptive beamforming unit, and noise reduction unit are integrated in a digital signal processor. (*Id.*).

[FF21] Claims 1-35 of the '049 Patent were ultimately allowed. (*Id.*).

[FF22] Claim 1 of the '049 Patent recites a substantially similar "determining a delay" limitation as the '756 Patent, with the claims removing the limitations of an arbitrary array of sound sensors. (PTX-1 at 21:45-57).

[FF23] Claim 1 of the '049 Patent also recites a microphone array system comprising an array of sound sensors position in a "linear, circular, or other" configuration, removing the arbitrary configuration recited in the '756 Patent. (*Id.* at 21:29-31).

[FF24] Claim 1 of the '049 Patent recites a sound source localization unit, adaptive beamforming unit, and noise reduction unit, and further recites that said units are “integrated in a digital signal processor.” (*Id.* at 21:31-36).

E. Earlier Patent Applications

1. U.S. Patent Application No. 11/199,895

[FF25] On August 9, 2005, Dr. Li filed U.S. Patent Application No. 11/199,895 (the “'895 Application”). (DTX-954). The title of the '895 Application is “Voice-Operated Remote Control for TV and Electronic Systems.” (*Id.*).

[FF26] The '895 Application published on February 9, 2006 under U.S. Patent Application Publication No. 2006/0028337. (*Id.*).

[FF27] The '895 Application disclosed a microphone array, a digital signal processor, a noise reduction unit, and an array signal processing algorithm weighting microphone outputs and which steers a beam. (DTX-954 at Fig. 1, ¶ 17; *see also* Dkt. No. 329 (October 1, 2020 Afternoon Trial Tr.) at 268:19-269:21; 270:18-23).

[FF28] All claims of the '895 Application were rejected. (DTX-957.41, 957.43-52).

[FF29] The '895 Application was abandoned. (DTX-957.39; Dkt. No. 329 (October 1, 2020 Afternoon Trial Tr.) at 272:13-14).

[FF30] A petition to revive the abandoned '895 Application was filed and later dismissed by the Patent Office. (DTX-957.5; Dkt. No. 341 (Bench Trial Tr.) at 1404:3-15).

[FF31] The '895 Application was not disclosed to the Patent Office during the prosecution of the '756 Patent. (PTX-4).

[FF32] The '895 Application was not disclosed to the Patent Office during the prosecution of the '049 Patent. (PTX-3).

2. U.S. Patent Application No. 11/419,501

[FF33] On May 21, 2006, Dr. Li filed U.S. Patent Application No. 11/419,501 (the “’501 Application”). (DTX-955). The title of the ’501 Application is “Mobile Two-Way Spoken Language Translator and Noise Reduction Using Multi-Directional Microphone Arrays.” (*Id.*).

[FF34] The ’501 Application published on November 30, 2006 under U.S. Patent Application Publication No. 2006/0271370. (*Id.*).

[FF35] The ’501 Application disclosed a circular microphone array and adaptive beamforming techniques. (DTX-955 at Fig. 2, ¶¶ 11, 29, 3:5-9; Dkt. No. 329 (October 1, 2020 Afternoon Trial Tr.) at 277:14-23; Dkt. No. 330 (October 2, 2020 Morning Trial Tr.) at 286:22-287:13; Dkt. No. 341 (Bench Trial Tr.) at 1402:18-1403:6).

[FF36] All pending claims in the ’501 Application were rejected. (DTX-958.60-73).

[FF37] After the applicant amended the application, all pending claims in the ’501 Application were again rejected. (DTX-958.4-19; Dkt. No. 330 (October 2, 2020 Morning Trial Tr.) at 287:14-18).

[FF38] The ’501 Application was abandoned. (DTX-958.2; Dkt. No. 330 (October 2, 2020 Morning Trial Tr.) at 287:19-21).

[FF39] The ’501 Application was not disclosed to the Patent Office during the prosecution of the ’756 Patent. (PTX-4).

[FF40] The ’501 Application was not disclosed to the Patent Office during the prosecution of the ’049 Patent. (PTX-3).

3. U.S. Patent Application No. 11/223,490

[FF41] On September 9, 2005, Dr. Li filed U.S. Patent Application No. 11/223,490 (the “’490 Patent”). (DTX-956). The title of the ’490 Application is “Vocalife Line: A Voice-Operated Device and System for Saving Lives in Medical Emergency.” (*Id.*).

[FF42] The ’490 Application published on March 15, 2007 under U.S. Patent Application Publication No. 2007/0057798. (*Id.*).

[FF43] The ’490 Application disclosed a microphone device, a digital signal processor, noise reduction unit, and an acoustic beam formed and steered to the directions of the source of sound. (DTX-956 at Fig. 2, ¶ 16; Dkt. No. 329 (October 1, 2020 Afternoon Trial Tr.) at 274:8-23; Dkt. No. 341 (Bench Trial Tr.) at 1402:2-14).

[FF44] The ’490 Application was rejected. (DTX-959.4-10).

[FF45] The ’490 Application was abandoned. (DTX-959.2; Dkt. No. 329 (October 1, 2020 Afternoon Trial Tr.) at 276:15-17).

[FF46] The ’490 Application was not disclosed to the Patent Office during the prosecution of the ’756 Patent. (PTX-4).

[FF47] The ’490 Application was not disclosed to the Patent Office during the prosecution of the ’049 Patent. (PTX-3).

F. The 2009 Article

[FF48] In 2009, Dr. Li presented a paper, co-authored with Dr. Zhu and Wei Li, at the IEEE International Conference on Acoustics, Speech, and Signal Processing, titled “A Portable USB-Based Microphone Array Device for Robust Speech Recognition” (the “2009 Article”). (DTX-14; Dkt. No. 330 (October 2, 2020 Morning Trial Tr.) at 288:4-7).

[FF49] The 2009 Article was published in 2009. (DTX-33; Dkt. No. 330 (October 2, 2020 Morning Trial Tr.) at 288:8-10).

[FF50] The 2009 Article includes a hardware structure with a microphone array, digital signal processor, beamforming unit, and noise reduction unit. (DTX-14.4, Fig. 2; DTX-33.1, Fig. 2; Dkt. No. 330 (October 2, 2020 Morning Trial Tr.) at 288:16-289:4).

[FF51] Among the references cited in the 2009 Article are the Brandstein book. (DTX-14.7; DTX-33.4; Dkt. No. 330 at 289:22-25).

[FF52] The 2009 Article discloses the same formula for delay calculation as the '049 and '756 Patents, at least with regard to a linear microphone array. (PTX-1 at Fig. 6B; PTX-2 at Fig. 6B; DTX-14.5; DTX-33.2; Dkt. No. 331 (October 2, 2020 Afternoon Trial Tr.) at 447:11-15).

[FF53] Dr. Zhu testified that the 2009 Article and '049 Patent both disclose a noise reduction unit, but otherwise were “not the same at all.” (Dkt. No. 331 (October 2, 2020 Afternoon Trial Tr.) at 435:22-436:7).

[FF54] The 2009 Article was not disclosed to the Patent Office during the prosecution of the '756 Patent. (PTX-4; DTX-1026 at 104:9-13).

[FF55] The 2009 Article was not disclosed to the Patent Office during the prosecution of the '049 Patent. (PTX-3; DTX-1026 at 70:20-71:2).

[FF56] The 2009 Article was disclosed in another of Dr. Li’s patents, U.S. Patent No. 9,131,305 (the “'305 Patent”), which was applied for on January 17, 2013. (DTX-16).

[FF57] The 2009 Article was also disclosed in a second reissue application based on the '756 Patent, U.S. Patent Application No. 16/052,623 (the “'623 Application”—and, in fact, the 2009 Article was the basis for rejection of claims in the '623 Application—however, the '623 Application was allowed. (*See* DTX-980.37; Dkt. No. 341 (Bench Trial Tr.) at 1453:15-18).

G. The Brandstein Book

[FF58] Brandstein, Michael, *Microphone Arrays: Signal Processing Techniques and Applications* (Springer 2001) (“Brandstein”) (DTX-49) is a book that Dr. Li was familiar with at least as of 2009. (Dkt. No. 329 (October 1, 2020 Afternoon Trial Tr.) at 254:2-4; Dkt. No. 330 (October 2, 2020 Morning Trial Tr.) at 290:1-3).

[FF59] Brandstein contains several sections on noise reduction using microphone arrays. (DTX-49.55-49.73, 49.125-144, 49.263-283; Dkt. No. 329 (October 1, 2020 Afternoon Trial Tr.) at 255:6-257:1).

[FF60] Brandstein contains sections on echo cancellation. (DTX-49.288-310; Dkt. No. 329 (October 1, 2020 Afternoon Trial Tr.) at 258:1-5).

[FF61] Brandstein contains sections on sound source localization. (DTX-49.169-210; Dkt. No. 329 (October 1, 2020 Afternoon Trial Tr.) at 259:4-8; 260:12-23).

[FF62] Brandstein contains sections on adaptive beamforming. (DTX-49.102-121; Dkt. No. 329 (October 1, 2020 Afternoon Trial Tr.) at 264:4-9).

[FF63] Brandstein contains a reference to the implementation of a robust adaptive microphone array using a digital signal processor. (DTX-49.119; Dkt. No. 329 (October 1, 2020 Afternoon Trial Tr.) at 265:20-25).

[FF64] Brandstein was cited as a reference in the 2010 Provisional Application for the ’756 Patent. (PTX-8; Dkt. No. 341 (Bench Trial Tr.) at 1416:2-8).

[FF65] However, thereafter, Brandstein was not disclosed to the Patent Office during the prosecution of the ’756 Patent. (PTX-4).

[FF66] Brandstein was not disclosed to the Patent Office during the prosecution of the ’049 Patent. (PTX-3).

H. Dr. Li

[FF67] Dr. Li and co-inventor Dr. Manli Zhu signed declarations recognizing the duty of candor with their applications for the '756 Patent and '049 Patent. (*See* DTX-54; DTX-55).

[FF68] Dr. Li testified that he was aware of the duty to disclose material information based on the declaration he signed with respect to the applications for the '756 Patent and '049 Patent. (Dkt. No. 341 (Bench Trial Tr.) at 1409:24-1411:15).

[FF69] Dr. Li also testified that his attorney, Ashok Tankha, "has the access to . . . [Dr. Li's] personal website for all the information," which included Dr. Li's patents and references, published papers, and "the book." (*Id.* at 1411:22-25).

[FF70] Dr. Li testified that he and Dr. Zhu submitted "everything" to their patent attorney, Mr. Tankha, and it was "up to [their] patent attorney to decide which . . . reference[s] to submit to the Patent Office." (*Id.* at 1412:23-24; 1413:5-6).

[FF71] Dr. Zhu corroborated that all relevant materials were provided to Mr. Tankha, who alone decided what to disclose and what to not disclose to the Patent Office. (Dkt. No. 331 (October 2, 2020 Afternoon Trial Tr.) at 453:4-7).

[FF72] Although he could not remember whether his abandoned patent applications—the '895, '501, and '490 Applications—were disclosed in the '756 or '049 Patents, Dr. Li testified that all relevant materials, i.e. *everything*, was submitted to Mr. Tankha. (Dkt. No. 341 (Bench Trial Tr.) at 1413:22-1414:8).

[FF73] The 2009 Article was provided to Mr. Tankha by Dr. Li via email in February of 2013. (DTX-32; DTX-33 (the 2009 Article attached to Dr. Li's email); Dkt. No. 341 (Bench Trial Tr.) at 1420:7-1421:23).

[FF74] Dr. Li understood and believed that the 2010 Provisional Application for the '756 Patent was incorporated into the file history of the '049 Patent, therefore incorporating the Brandstein reference. (Dkt. No. 341 (Bench Trial Tr.) at 1426:23-1427:22).

I. Mr. Tankha

[FF75] The '895, '501, and '490 Applications were filed by Kao Lu, who was later fired by Dr. Li in part because Mr. Lu did not keep Dr. Li apprised of Patent Office communications. (Dkt. No. 341 (Bench Trial Tr.) at 1403:14-1404:2; 1404:20-24; DTX-957.1-2).

[FF76] Dr. Li then hired the law firm of Kenyon & Kenyon. (Dkt. No. 341 (Bench Trial Tr.) at 1404:25-1405:3).

[FF77] Sometime later, Dr. Li hired Mr. Tanhka as his patent attorney. (Dkt. No. 341 (Bench Trial Tr.) at 1405:8-12).

[FF78] Mr. Tankha is still the patent attorney for Li Creative and Vocalife. (DTX-1026 at 25:15-19).

[FF79] Mr. Tankha obtained a copy of the 2009 Article from Li Creative during the prosecution of the '756 Patent, but made the determination that the 2009 Article was not material and did not submit it to the Patent Office. (DTX-1026 at 104:9-13; 109:7-110:3; 110:11-24).

[FF80] Mr. Tankha made the same determination as to the '049 Patent—that the 2009 Article was not material—and likewise did not submit the 2009 Article in the application for the '049 Patent. (DTX-1026 at 109:21-110:10).

[FF81] Mr. Tankha testified that he did not speak with Dr. Li about the decision not to disclose the 2009 Article to the Patent Office during the prosecution of the '756 and '049 Patents. (DTX-1026 at 113:15-114:12).

J. Mr. Godici

[FF82] Before the Court, Amazon called Nicholas Godici as an expert witness to testify regarding the patent prosecution process, the prosecution history of the '756 and '049 Patents, and facts relevant to the inequitable conduct claim. (Dkt. No. 341 (Bench Trial Tr.) at 1437:2-7).

[FF83] Mr. Godici was a longtime employee of the Patent Office, having previously served as Commissioner of Patents and Acting Undersecretary of Commerce. (Dkt. No. 341 (Bench Trial Tr.) at 1430:18-1431:18).

[FF84] Mr. Godici testified that the 2010 Provisional Application was not a part of the file wrapper of the '756 or '049 Patents—however, Mr. Godici acknowledged that the 2010 Provisional Application was cited in the '756 Patent and that the provisional application specification was incorporated by reference. (Dkt. No. 341 (Bench Trial Tr.) at 1439:9-24; 1487:8-11; 1492:21-23).

[FF85] Mr. Godici also testified that “[t]he only time that [the patent examiner] would actually look at the provisional application is . . . when there is a question of whether or not the effective filing date of the provisional application is important . . . if there’s an intervening prior art reference.” (Dkt. No. 341 (Bench Trial Tr.) at 1440:6-10).

[FF86] Mr. Godici based his opinions in part because the disclosed prior art predated the provisional application, meaning there was no reason for the examiner to review the 2010 Provisional Application. (Dkt. No. 341 (Bench Trial Tr.) at 1440:11-17).

[FF87] Mr. Godici relied in part on opinions from Dr. Richard Stern that the 2009 Article disclosed the “determining a delay” limitation and was therefore material. (Dkt. No. 341 (Bench

Trial Tr.) at 1451:11-1452:8; *see also* Dkt. No. 336 (October 6, 2020 Afternoon Trial Tr.) at 1087:23-1088:5).

[FF88] In light of witness testimony and the file histories of the '756 and '049 Patents, Mr. Godici opined that Dr. Li, Dr. Zhu, and Mr. Tankha failed to disclose the 2009 Article, a material prior art reference. (*See* Dkt. No. 341 (Bench Trial Tr.) at 1448:20-1449:1).

[FF89] Mr. Godici relied on Dr. Stern's opinions that claim limitations of the '049 Patent were contained in Brandstein—particularly, with regard to the “determining a delay” step and sound source localization unit, adaptive beamforming unit, and noise reduction unit integrated into a digital signal processor. (Dkt. No. 341 (Bench Trial Tr.) at 1460:21-1461:5; 1461:11-13; 1461:23-1462:4; Dkt. No. 336 (October 6, 2020 Afternoon Trial Tr.) at 1075:1-5).

[FF90] Mr. Godici further relied on the testimony of Vocalife's expert Joseph McAlexander, who acknowledged that Brandstein described a “determining a delay” limitation. (Dkt. No. 341 (Bench Trial Tr.) at 1461:14-18; Dkt. No. 338 (October 7, 2020 Morning Trial Tr.) at 1220:18-20).

[FF91] Mr. Godici also concluded that Brandstein was a known reference in part based on certain wording contained in Brandstein, which appeared nearly identical to the wording contained in the 2010 Provisional Application. (Dkt. No. 341 (Bench Trial Tr.) at 1463:3-1464:4).

[FF92] In light of witness testimony and the file histories of the '756 and '049 Patents, Mr. Godici concluded that Brandstein was not disclosed as a prior art reference despite its materiality. (*See* Dkt. No. 341 (Bench Trial Tr.) at 1467:3-8).

[FF93] Mr. Godici further based his opinions on the fact that the application for the '049 Patent was rejected more than once for defective reissue declarations. (See Dkt. No. 341 (Bench Trial Tr.) at 1467:16-20; DTX-54.115-116; DTX-54.287-288).

II. CONCLUSIONS OF LAW (“CL”)

A. Legal Standard

1. Federal Rule of Civil Procedure 52

[CL1] “If a party has been fully heard on an issue . . . the court may enter judgment against the party on a claim or defense that, under the controlling law, can be maintained or defeated only with a favorable finding on that issue.” Fed. R. Civ. P. 52(c). Such a judgment “must be supported by findings of fact and conclusions of law.” *Id.*

[CL2] The purpose of these findings is to “afford[] . . . a clear understanding of the ground or basis of the decision of the trial court.” *S. S. Silberblatt, Inc. v. U.S. for Use & Benefit of Lambert Corp.*, 353 F.2d 545, 549 (5th Cir. 1965) (internal quotation marks omitted); *see also Schlesinger v. Herzog*, 2 F.3d 135, 139 (5th Cir. 1993) (explaining that trial courts need not “recite every piece of evidence” or “sort through the testimony of . . . dozen[s] [of] witnesses”).

[CL3] In making a particular finding, the district court “does not . . . draw any inferences in favor of the non-moving party and . . . [instead] make[s] a determination in accordance with its own view of the evidence.” *Fairchild v. All Am. Check Cashing, Inc.*, 815 F.3d 959, 964 n.1 (5th Cir. 2016) (internal quotation marks omitted). However, a district court still must arrive at each of its factual determinations based on the applicable burden of proof. *In re Medrano*, 956 F.2d 101, 102 (5th Cir. 1992) (reversing the district court because it applied the preponderance of the evidence standard rather than the clear and convincing standard in making its factual determinations under Rule 52).

2. **Inequitable Conduct**

[CL4] “When a court has finally determined that inequitable conduct occurred in relation to one or more claims during prosecution of the patent application, the entire patent is rendered unenforceable.” *Kingsdown Medical Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 877 (Fed. Cir. 1988).

[CL5] Reissue cannot cure unenforceability due to inequitable conduct in the prosecution of the original patent. “[I]f the district court finds there was inequitable conduct in the prosecution of the original patent then the reissue patent is invalid and an appropriate judgment should be entered.” *Hoffman-La Roche Inc. v. Lemmon Co.*, 906 F.2d 684, 688-89 (Fed. Cir. 1990); *see also Aventis Pharma S.A. v. Amphastar Pharm., Inc.*, 525 F.3d 1334, 1341 n.6 (Fed. Cir. 2008).

[CL6] Pursuant to 37 C.F.R. § 1.56, “[a]pplicants for patents are required to prosecute patent applications in the PTO with candor, good faith, and honesty.” *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1178 (Fed. Cir. 1995). Such duty “extends also to the applicants’ representatives.” *Id.*

[CL7] A breach of the duty of candor can constitute inequitable conduct. *Id.*

[CL8] Inequitable conduct contains two elements, the first of which is the “materiality” element and the second of which is an “intent to deceive” the U.S. Patent and Trademark Office (the “PTO”). “Inequitable conduct requires a misrepresentation or omission of a material fact, together with an intent to deceive the PTO.” *Hoffman-La Roche, Inc. v. Promega Corp.*, 323 F.3d 1354, 1359 (Fed. Cir. 2003).

[CL9] “[T]he party alleging inequitable conduct bears the burden of proof” *Therasense, Inc. v. Becton, Dickinson and Co.*, 649 F.3d 1276, 1291 (Fed. Cir. 2011).

[CL10] “[C]lear and convincing evidence must show that the applicant made a deliberate decision to withhold a known material reference.” *Molins PLC*, 48 F.3d at 1181.

[CL11] With respect to the first element, “information is material when a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent.” *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 537 F.3d 1357, 1367 (Fed. Cir. 2008) (internal quotation marks omitted).

[CL12] “[T]he materiality required to establish inequitable conduct is but-for materiality. When an applicant fails to disclose prior art to the PTO, that prior art is but-for material if the PTO would not have allowed a claim had it been aware of the undisclosed prior art.” *Therasense*, 649 F.3d at 1291.

[CL13] “Information cumulative of other information already before the Patent Office is not material.” *Honeywell Int'l Inc. v. Universal Avionics Sys. Corp.*, 488 F.3d 982, 1000 (Fed. Cir. 2007).

[CL14] “Materiality does not presume intent, which is a separate and essential component of inequitable conduct.” *GFI, Inc. v. Franklin Corp.*, 265 F.3d 1268, 1274 (Fed. Cir. 2001).

[CL15] With respect to the second element, “[t]o prevail on a claim of inequitable conduct, the accused infringer must prove that the patentee acted with the specific intent to deceive the PTO.” *Therasense*, 649 F.3d at 1290.

[CL16] “[B]ecause direct evidence of deceptive intent is rarely available, such intent can be inferred from indirect and circumstantial evidence.” *Star*, 537 F.3d at 1366. “[T]he inference must not only be based on sufficient evidence and be reasonable in light of that evidence, but it

must also be the single most reasonable inference able to be drawn from the evidence to meet the clear and convincing standard.” *Id.*

[CL17] The conduct accused “must be sufficient to *require* a finding of deceitful intent in light of all of the circumstances.” *Kingsdown*, 863 F.2d at 873 (emphasis added).

B. Analysis

1. Materiality

[CL18] Defendants have met their burden to prove, by clear and convincing evidence, that one or more prior art references at issue were material.

[CL19] The ’895 Application disclosed a microphone array, a digital signal processor, a noise reduction unit, and an array signal processing algorithm weighting microphone outputs and which steers a beam. *See FF27.* The ’501 Application disclosed a circular microphone array and adaptive beamforming techniques. *See FF35.* The ’490 Application disclosed a microphone device, a digital signal processor, noise reduction unit, and an acoustic beam formed and steered to the directions of the source of sound. *See FF43.* The Court therefore concludes that these three prior patent applications are material, because the Patent Office would not have allowed the claims of the ’756 or ’049 Patents had it been aware of the ’895, ’501, and/or ’490 Applications. *Therasense*, 649 F.3d at 1291.

[CL20] The 2009 Article disclosed a hardware structure with a microphone array, digital signal processor, beamforming unit, and noise reduction unit, and also disclosed the same formula for delay calculation as the ’049 and ’756 Patents, at least with regard to a linear microphone array. *See FF50; FF52.* The Court therefore concludes that the 2009 Article was material, because the Patent Office would not have allowed the claims of the ’756 or ’049 Patents had it been aware of

the 2009 Article. *Therasense*, 649 F.3d at 1291. This is especially so given that the “determining a delay” limitation was added to overcome a rejection by the Patent Office. *See FF10-11.*

[CL21] Brandstein disclosed: noise reduction using microphone arrays; echo cancellation; sound source localization; adaptive beamforming; and the implementation of a robust adaptive microphone array using a digital signal processor. *See FF59-63.* The Court therefore concludes that Brandstein was material, because the Patent Office would not have allowed the claims of the ’756 or ’049 Patents had it been aware of Brandstein. *Therasense*, 649 F.3d at 1291. However, the Court notes that the Patent Office was on notice and may have had actual knowledge of Brandstein, as it was cited in the 2010 Provisional Application. *See FF64.*

2. Intent to Deceive

[CL22] Defendants failed to meet their burden to prove, by clear and convincing evidence, that the patentees or their counsel had a specific intent to deceive the Patent Office. Having considered the evidence, the Court is not persuaded that intent to deceive is “the single most reasonable inference able to be drawn from the evidence,” nor does the Court find that the conduct of the patentees or their counsel “require[s] a finding of deceitful intent.” *Star*, 537 F.3d at 1366; *Kingsdown*, 863 F.2d at 873.

[CL23] Dr. Li testified to his belief that his patent attorney, Mr. Tankha, had access to all relevant prior art references—including his prior patents and applications (accessible on Dr. Li’s website), the 2009 Article which Dr. Li emailed to Mr. Tankha, and the Brandstein article which was disclosed in the 2010 Provisional Application. *See FF69-70; FF72-73.* There was no effort on Dr. Li’s part to hide or ignore these references. The Court therefore concludes that Defendants have not shown a specific intent on Dr. Li’s part to deceive the Patent Office.

[CL24] Dr. Zhu likewise testified that she and Dr. Li provided all relevant materials to Mr. Tankha. *See* FF71. The Court likewise concludes that Defendants have not shown that Dr. Zhu had a specific intent to deceive the Patent Office.

[CL25] Mr. Tankha testified that it was his determination as Dr. Li's patent attorney that the 2009 Article was not material, and thus did not submit that reference to the Patent Office. *See* FF79-81. Defendants produced no evidence as to Mr. Tankha's intent regarding the remaining prior art references at issue here, i.e., the three prior patent applications and Brandstein. The Court therefore concludes that Defendants have not shown a specific intent on Mr. Tankha's part to deceive the Patent Office. While Mr. Tankha may have been wrong in deciding that the 2009 Article was not material, he made a conscious decision as Dr. Li's attorney which, regardless of its merits, is clearly at odds with a knowing intent to deceive the Patent Office. Precedent compels the Court to conclude that, because Defendants failed to show that the only reasonable conclusion as to Mr. Tankha's conduct was an intentional and knowing desire to deceive the Patent Office, inequitable conduct is not present here.

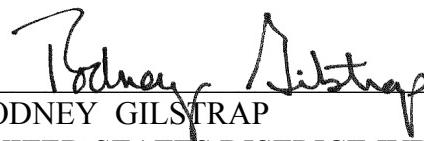
[CL26] Accordingly, the Court concludes that Defendants have not shown a specific intent on the part of either the patentees or their counsel to deceive the Patent Office, and have consequently failed to meet their clear and convincing burden of proof as to the intent element of inequitable conduct.

II. CONCLUSION

For the reasons set forth above, the Court concludes that Defendants have failed to establish by clear and convincing evidence the defense of inequitable conduct in this case. Accordingly, such defense does not render the '049 Patent unenforceable. Defendants' inequitable conduct defense is **DENIED**. Consequently, the jury's verdict stands.

It is further **ORDERED** that this ruling shall be **PROVISIONALLY SEALED** pending submission and action on the Parties' proposed redactions. Such proposed redactions shall include specific explanations for the necessity of such redactions as balanced against the Public's interest in open judicial proceedings. *Richmond Newspapers v. Virginia*, 448 U.S. 555, 592 (1980) ("[O]pen trials are bulwarks of our free and democratic government: public access to court proceedings is one of the numerous 'checks and balances' of our system, because 'contemporaneous review in the forum of public opinion is an effective restraint on possible abuse of judicial power.'") (*quoting In re Oliver*, 333 U.S. 257, 270 (1948)). Such proposed redactions shall be filed within seven (7) days of this Order. Failure to submit timely proposed redactions will result in the complete unsealing of the Order, which may not be later resealed or redacted.

So ORDERED and SIGNED this 10th day of December, 2020.



RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE